Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

In the Matter of	)	
	)	
Petition of Symbol Technologies, Inc.	)	RM No. 8608
to Amend Section 15.247(a)(1)(ii)	)	
of the Commission's Rules on	)	
Spread Spectrum	)	

COMMENTS OF NORAND CORPORATION

Norand Corporation, by its attorneys, hereby comments on the above-referenced Petition for Rule Making ("Petition") filed by Symbol Technologies, Inc. ("Symbol").[1] The Petition asks that the Commission amend Section 15.247(a)(1)(ii) of its rules to reduce the number of hopping frequencies required for frequency hopping devices which operate in the 2.4 GHz and 5.8 GHz bands, and it asks the Commission to increase the maximum permissible bandwidth of each hopping frequency. Norand generally supports these proposals because they will foster the joint development of products for both the U.S. and the European markets. Norand recommends, however, that the number of hopping frequencies be reduced to 20 -- rather than 15 as Symbol proposes -- so that the U.S. standard more closely matches the one employed in Europe. Norand also recommends that, to ensure spectrum efficiency, the Commission require a reduction in output power proportionate to any increase in bandwidth beyond the existing 1 MHz limit.

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[1] Symbol's Petition appeared in the Commission's Public Notice of February 28, 1995 (Rep. No. 2059).

I. INTRODUCTION AND INTEREST OF NORAND

Norand is a manufacturer of portable computing devices used commercially for both indoor and mobile applications. Norand also produces premises-based wireless networking products that allow portable devices to operate without wire connections to traditional computer network infrastructures. Norand's customers employ these devices to increase worker productivity through automation, to better manage inventory, and to gather real-time market information to ensure that their customers' needs are constantly being met.

Norand has grown significantly in its twenty-five years in existence, experiencing double digit growth rates to current annual sales of $193 million with profits of $17.2 million. To maintain such a strong growth rate, to improve current products and to develop new markets, Norand consistently reinvests a significant portion of its revenues (10.6 percent in 1994) in research and development.

Norand's equipment line includes several 2.4 GHz frequency hopping devices. In addition to marketing its products in the U.S., approximately 20 percent of Norand's revenues come from exports. Norand has significant exports to Europe, Canada, Latin America, and the Asia-Pacific region, and its export activities continue to expand.

II. DISCUSSION

In its Petition, Symbol argues that reducing the number of hopping frequencies will enable manufacturers to produce the same equipment for domestic and European use, thereby reducing production costs for U.S. manufacturers. Norand agrees with this position. U.S. manufacturers are world leaders in the development of frequency hopping technology.

Reducing the number of frequency hops will allow manufacturers to expand their market by making it easier to produce the same products for use in the U.S. and Europe.

However, Norand proposes that the number of hopping frequencies be set at 20 -- the same number employed in these bands under European standards. If the Commission had decided to exclude Part 15 devices from the use of the 2402-2417 MHz band, setting the number at 15 might have been appropriate. As a result of the Commission's decision to retain the 2402-2417 MHz band for Part 15 use,[2] there is sufficient spectrum to adopt the European minimum.

Norand also supports Symbol's proposal to increase the permissible frequency bandwidth. As Symbol notes, increased bandwidth will enhance the competitiveness of wireless Local Area Networks operating in this spectrum by supporting higher data rates at lower costs. This change should result in more economical equipment. However, the Commission should proportionally reduce the permissible output power to the extent the bandwidth is allowed to exceed the current 1 MHz limit. For example, 2 MHz bandwidth frequencies could be restricted to 500 mW output power, while 4 MHz bandwidth frequencies would be restricted to 250 mW. Reducing output power as bandwidth increases will appropriately balance the benefits achieved against the spectrum efficiency concerns created by employing greater bandwidth.

Finally, Norand concurs with Symbol's assessment that these proposed changes will not impact the interference potential for operations in this spectrum. After these

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[2] *See Allocation of Spectrum Below 5 GHz Transferred From Federal Government Use*, First Report and Order and Second Notice of Proposed Rule Making, ET Docket No. 94-32, FCC 95-47 (released Feb. 17, 1995).

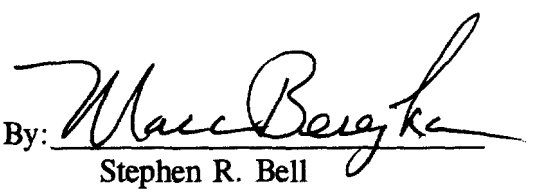
changes, frequency hopping systems will create no greater interference potential than direct sequence devices do now.

III. CONCLUSION

For the reasons and with the qualifications set forth above, Norand urges the Commission to act affirmatively on Symbol's Petition for Rule Making and to expeditiously initiate a proceeding based on it.

Respectfully submitted,

NORAND CORPORATION

By: 

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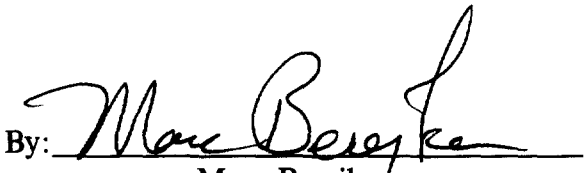
March 30, 1995

CERTIFICATE OF SERVICE

I, Marc Berejka, do hereby certify that copies of the foregoing Comments of Norand Corporation were sent via first class mail, postage prepaid, this 30th day of March, 1995 to the parties of record in this matter.

By: 

Marc Berejka